

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A management system comprising a printing machine, a management apparatus and a hand-held device configured as a maintenance terminal connected to one another over an external network, wherein

said printing machine generates use information indicating contents of a printing operation and transmits said generated use information to said management apparatus, and

said management apparatus receives said use information sent from said printing machine, discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said received use information, and transmits instruction information instructing preventive maintenance to said hand-held device when it is discriminated that said preventive maintenance is needed, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device,

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized by said management apparatus, and said use information generated by said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation, and

said management apparatus discriminates whether or not said preventive maintenance for said printing machine is needed based on whether any one of computed actual numbers of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information and said date-of-usage information included in said use information sent from said printing machine.

2. (Canceled)

3. (Previously presented) The management system according to claim 1, wherein said management apparatus memorizes maintenance field information indicating a field of maintenance which is carried out by a maintenance person who uses said hand-held device, specifies said hand-held device of said maintenance person who maintains said printing machine, when it is discriminated that said preventive maintenance is needed, based on contents of said preventive maintenance discriminated as necessary and said maintenance field information, and transmits instruction information to said specified hand-held device.

4. (Currently Amended) A management system comprising a printing machine, a user terminal, a management apparatus, a substitute printing machine and a hand-held device configured as a maintenance terminal connected to one another over an external network, wherein

said printing machine generates use information indicating contents of a printing operation and transmits said generated use information to said management apparatus, and

said management apparatus receives said use information sent from said printing machine, discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said received use information, and transmits instruction information instructing preventive maintenance to said hand-held device when it is discriminated that said preventive maintenance is needed, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device,

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized by said management apparatus, and said use information generated by said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation,

said management apparatus discriminates whether or not said preventive maintenance for said printing machine is needed based on whether any one of computed actual numbers of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information and said date-of-usage information included in said use information sent from said printing machine, and

in a case where received trouble information indicating contents of a occurred trouble generated by and sent from said printing machine, said management apparatus discriminates whether urgent maintenance for said printing machine is needed or not in accordance with said received trouble information, transmits substitution information of said substitute printing machine to be a substitute output destination to said user terminal which is using said printing machine, when it is discriminated that said urgent maintenance is needed, and transmits instruction information instructing collection of a target print to be printed by said substitute printing machine and urgent maintenance to said hand-held device in accordance with transmission of said substitution information.

5. (Original) The management system according to claim 4, wherein said management apparatus memorizes, beforehand, a driver program which is to be run by said printing machine, and installs said driver program in said user terminal.

6. (Previously presented) The management system according to claim 4, wherein said management apparatus memorizes maintenance field information indicating a field of maintenance which is carried out by a maintenance person who uses said hand-held device, specifies said hand-held device of said maintenance person who maintains said printing machine, when it is discriminated that said urgent maintenance is needed, based on contents of said urgent maintenance discriminated as necessary and said maintenance field information, and transmits instruction information to said specified hand-held device.

7. (Currently Amended) A machine management apparatus which is connected to an external printing machine and an external hand-held device configured as a maintenance terminal over an external network and has:

a communication control device that receives use information sent from said printing machine; and

a processor that discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received by said communication control device, and generates instruction information instructing preventive maintenance to said hand-held device, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device,

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized, said use information generated by said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation,

said processor discriminates whether or not said preventive maintenance for said printing machine is needed based on whether any one of computed actual number of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information and said date-of-usage information included in said use information sent from said printing machine, and

said communication control device transmits said instruction information to said hand-held device when it is discriminated that said preventive maintenance is needed.

8. (Previously presented) The machine management apparatus according to claim 7, further having a memory which stores maintenance field information indicating a field of maintenance which is carried out by a maintenance person who uses said hand-held device, and wherein

when having discriminated that said preventive maintenance is needed, said processor specifies said hand-held device of said maintenance person who maintains said printing machine, based on contents of said preventive maintenance discriminated as necessary and said maintenance field information, and

said communication control device transmits instruction information to said specified hand-held device.

9. (Currently Amended) A machine management apparatus which is connected to an external printing machine, an external user terminal, an external substitute printing machine and an external hand-held device configured as a maintenance terminal over an external network and is comprised of:

a communication control device that receives use information indicating contents of a printing operation sent from said printing machine; and

a processor that discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received by said communication control device, and generates instruction information instructing preventive maintenance to said hand-held device when it is discriminated that said preventive maintenance is needed, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device,

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized, said use information sent from said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation,

said processor discriminates whether or not said preventive maintenance for said printing machine is needed based on whether any one of computed actual numbers of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts

information and said date-of-usage information included in said use information sent from said printing machine, and

in a case where received trouble information sent from said printing machine by said communication control device, said processor that discriminates whether urgent maintenance for said printing machine is needed or not in accordance with said trouble information, generates substitution information of said substitute printing machine, which is to be a substitute output destination and is to be transmitted to said user terminal which is using said printing machine, when it is discriminated that said urgent maintenance is needed, and generates instruction information instructing collection of a target print to be printed by said substitute printing machine and urgent maintenance in accordance with transmission of said substitution information,

said communication control device transmits said substitution information to said user terminal which is using said printing machine and transmits said instruction information to said hand-held device.

10. (Previously presented) The machine management apparatus according to claim 9, further having a memory which stores maintenance field information indicating a field of maintenance which is carried out by a maintenance person who uses said hand-held device, and wherein

when having discriminated that said urgent maintenance is needed, said processor specifies said hand-held device of said maintenance person who maintains said printing machine, based on contents of said urgent maintenance discriminated as necessary and said maintenance field information, and

said communication control device transmits instruction information to said specified hand-held device.

11. (Currently Amended) A maintenance work instructing method in an apparatus connected to a printing machine, a user terminal, a substitute printing machine and a hand-held device configured as a maintenance terminal over a network, comprising:

a use information receiving step which receives use information indicating contents of a printing operation sent from said printing machine;

a discrimination step which discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received in said use information receiving step; and

an instruction information transmitting step which transmits instruction information instructing preventive maintenance to said hand-held device when it is discriminated in said discrimination step that said preventive maintenance is needed, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device.

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized, said use information sent from said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating date of said printing operation, and

in said discrimination step whether or not said preventive maintenance for said printing machine is needed is discriminated based on whether any one of computed actual numbers of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information and said date-of-usage information included in said use information sent from said printing machine.

12. (Currently Amended) A maintenance work instructing method in an apparatus connected to a printing machine, a user terminal, a substitute printing machine and a hand-held device configured as a maintenance terminal over a network, comprising:

a use information receiving step which receives use information indicating contents of a printing operation sent from said printing machine;

a discrimination step which discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received in said use information receiving step; and

a instruction information transmitting step which transmits instruction information instructing preventive maintenance to said hand-held device when it is discriminated that said preventive maintenance is needed, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device;

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized, said use information sent from said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation, and

in said discrimination step whether or not said preventive maintenance for said printing machine is needed is discriminated based on whether any one of computed actual numbers of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information included in said use information and said date-of-usage information sent from said printing machine;

when trouble information is received, whether urgent maintenance is needed or not in accordance with said trouble information is discriminated, substitution information of said substitute printing machine to be a substitute print destination to said user terminal which is using said printing machine is transmitted, and when it is discriminated that said urgent maintenance is needed, instruction information instructing collection of a target print to be printed by said substitute printing machine and urgent maintenance to said hand-held device in accordance with transmission of said substitution information is transmitted.

13. (Currently Amended) A computer readable recording medium having a program recorded therein that allows a computer having a communication control device to function as a

machine management apparatus which is connected to an external printing machine and an external hand-held device configured as a maintenance terminal over an external network and which:

receives use information indicating contents of a printing operation sent from said printing machine;

discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received by said communication control device, and generates instruction information instructing preventive maintenance to said hand-held device when it is discriminated that said preventive maintenance is needed; and

transmits said instruction information to said hand-held device, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device,

wherein:

a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized, and said use information sent from said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation, and

said program allows said computer to discriminate whether or not said preventive maintenance for said printing machine is needed based on whether any one of computed actual number of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information and said date-of-usage information included in said use information sent from said printing machine.

14. (Currently Amended) A computer readable recording medium having a program recorded therein that allows a computer having a communication control device to function as a machine management apparatus which is connected to an external printing machine, an external

user terminal, an external substitute printing machine and an external hand-held device configured as a maintenance terminal over an external network and which:

receives use information indicating contents of a printing operation sent from said printing machine;

discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received by said communication control device;

generates instruction information instructing preventive maintenance to said hand-held device when it is discriminated that said preventive maintenance is needed, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device;

transmits said instruction information to said user terminal which is using said printing machine

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized, said use information generated by said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation,

said program allows said computer to discriminate whether or not said preventive maintenance for said printing machine is needed based on whether any one of computed actual numbers of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information and said date-of-usage information included in said use information sent from said printing machine, and

said program allows said computer to receive trouble information sent from said printing machine to discriminate whether urgent maintenance is needed or not in accordance with said trouble information received by said communication control device, to generate substitution information of said substitute printing machine, which is to be a substitute output destination and to be transmitted to said user terminal which is using said printing machine, when it is discriminated that said urgent maintenance is needed, to generate instruction information

instructing collection of a target print to be printed by said substitute printing machine and urgent maintenance in accordance with transmission of said substitution, and to transmit said substitution information to said user terminal which is using said printing machine and transmits said instruction information to said hand-held device.

15. (Currently Amended) A computer data signal buried in a carrier and expressing a program that allows a computer having a communication control device to function as a machine management apparatus which is connected to an external printing machine and an external hand-held device configured as a maintenance terminal over an external network and which:

receives use information indicating contents of a printing operation sent from said printing machine;

discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received by said communication control device, and generates instruction information instructing preventive maintenance to said hand-held device when it is discriminated that said preventive maintenance is needed; and

transmits said instruction information to said hand-held device, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device,

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized, said use information generated by said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation,

said program allows said computer to discriminate whether or not said preventive maintenance for said printing machine is needed based on whether any one of computed actual numbers of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information and said date-of-usage information included in said use information sent from said printing machine.

16. (Currently Amended) A computer data signal buried in a carrier and expressing a program that allows a computer having a communication control device to function as a machine management apparatus which is connected to an external printing machine, an external user terminal, an external substitute printing machine and an external hand-held device configured as a maintenance terminal over an external network and which:

receives use information indicating contents of a printing operation sent from said printing machine;

discriminates whether preventive maintenance for said printing machine is needed or not in accordance with said use information received by said communication control device;

generates instruction information instructing preventive maintenance to said hand-held device when it is discriminated that said preventive maintenance is needed, said hand-held device providing a notification of said instruction information instructing preventive maintenance through a display of said hand-held device;

transmits said instruction information to said user terminal which is using said printing machine;

wherein a threshold value indicating an upper limit of a number of printouts permitted to be made per week and a threshold value indicating an upper limit of a number of printouts permitted to be made per month, said threshold values being associated with said printing machine are memorized, said use information generated by said printing machine includes number-of-printouts information indicating a counted number of sheets printed by said printing operation and date-of-usage information indicating a date of said printing operation,

said program allows said computer to discriminate whether or not said preventive maintenance for said printing machine is needed based on whether any one of computed actual numbers of printouts in a week and printouts in a month exceeds the respective threshold value, said number-of-printouts information and said date-of-usage information included in said use information sent from said printing machine, and

said program allows said computer to receive trouble information sent from said printing machine to discriminate whether urgent maintenance is needed or not in accordance with said

trouble information received by said communication control device, to generate substitution information of said substitute printing machine, which is to be a substitute output destination and to be transmitted to said user terminal which is using said printing machine, when it is discriminated that said urgent maintenance is needed, to generate instruction information instructing collection of a target print to be printed by said substitute printing machine and urgent maintenance in accordance with transmission of said substitution, and to transmit said substitution information to said user terminal which is using said printing machine and transmits said instruction information to said hand-held device.